



Plutonium Finishing Plant

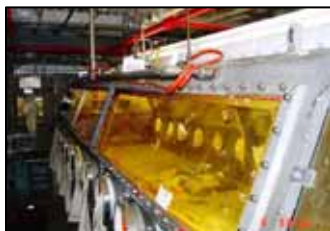
Restore the River Corridor - Transition the Central Plateau - Prepare for the Future



Before cleanout of glove box in the 234-5Z Facility



Anti-room for 232-Z Facility decontamination and decommissioning



Glove box HA-20MB in the 234-5Z Facility after cleanout



Robot used for legacy plutonium holdup removal in Plutonium Reclamation Facility Canyon

Background

From 1949 to 1989, U.S. Department of Energy contractors operated the Plutonium Finishing Plant (PFP) to process plutonium nitrate solutions into a solid form (hockey puck-sized “buttons” or oxide powder) for shipment to the nation’s weapons production facilities. PFP produced more plutonium metal buttons than any other American facility, and plutonium for the atomic bomb that ended World War II.

At the end of the Cold War, many of the defense nuclear material production lines were shut down with material still in various stages of the production process. This left Hanford with a sizeable inventory of unstable materials. In addition to buttons and oxides, PFP facilities contained plutonium-bearing solutions, polycubes, and residues. If improperly handled, plutonium materials pose a danger to workers, a threat of contamination, and a risk of a runaway nuclear reaction (called a “criticality”).

In March 2004, workers completed the stabilization and packaging of PFP’s inventory of nearly 18 metric tons of plutonium-bearing materials three months ahead of the Defense Nuclear Facilities Safety Board (DNFSB) milestone and were fully prepared to begin shipment of the inventory offsite. Once PFP’s plutonium-bearing materials were stabilized and packaged, workers began the process of dismantling the PFP complex, and essentially taking it down to “slab on grade.” This work includes breaking down and packaging for disposal about 250 hoods/glove boxes, 6,000 feet of ventilation ducting, miles of process, drain, and vacuum piping along with thousands of valves, pumps, tanks, and other equipment that supported plutonium finishing operations. In all, some 63 buildings will be cleaned out and leveled – eliminating the threat the PFP complex poses to Hanford workers and the surrounding environment. During the last few years, considerable progress has been made, including removal and disposition of 100 percent of the high risk “legacy hold-up” material, demolition of 13 ancillary facilities, decontamination of 44 hoods/glove boxes, removal of process equipment from 73 glove boxes, reduction of the size of the Material Access Area (MAA), and approval of clean up under CERCLA. The remainder “hold up” material will be completed in the future decontamination and decommissioning effort. To date, all stabilization and closure project milestones have been met by the PFP project.



Before



Before

Chemical mitigation 234-5Z Facility



After

Plutonium Finishing Plant

Scope

The scope of the PFP Closure Project includes cleanout, deactivation, decontamination and dismantling the PFP Complex to a “clean slab-on-grade” condition. Clean slab-on-grade is defined as a concrete slab (typically the first floor of a building) resting on grade (earth) that is free of dispersible radiological contamination. The target date in the current baseline is to achieve clean slab-on-grade by September 30, 2016.

Progress

- Completed 100 percent of the high risk legacy plutonium holdup removal as defined in the Legacy Plutonium Holdup Removal Plan for PFP required by MX-83-12-T01, more than 15 months ahead of the September 30, 2006 Tri-Party Agreement milestone.
- Stabilization and packaging of nearly 18 metric tons of plutonium-bearing materials – completing the last of the Defense Nuclear Facilities Safety Board milestones for PFP.



Plutonium solution containers

- Completed demolition of 13 of the total 63 facilities within the PFP complex.
- International Atomic Energy Agency substituted material at SRS K-Area Material Storage (KAMS) facility and de-selected more than 99 percent of Hanford's IAEA safeguarded inventory.
- Material Access Area in 234-5Z reduction completed, allowing decontamination and decommissioning work to be completed more efficiently.
- Completed last transfer from 241-Z to Tank Farms, and isolated the tanks, completing TPA milestone M-83-31 six months ahead of schedule. This was the last transfer to be made from a Hanford operating facility to the tank farms.
- First manned entry into the Plutonium Reclamation Facility (PRF) in 12 years (30 entries now completed to support legacy plutonium holdup removal and D&D activities).
- Shipped more than 50 percent of plutonium solution containers (PR Cans) packaging and shipping – first shipped to Central Waste Complex for eventual shipment to Waste Isolation Pilot Plant in New Mexico.
- Completed decontamination of more than 44 glove boxes to Low Level Waste criteria.



Emptied plutonium solution containers being packaged for shipment to Waste Isolation Pilot Plant in New Mexico

For more
information



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